

IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

**PATENT APPLICATION**

Appellant(s): **Michael Sinz et al.**

Case: **SEDN/E176600006**

Serial No.: **10/025,055** Filed: **12/19/01**

Examiner: **Lonsberry, Hunter B.** Group Art Unit: **2623**

Title: **APPARATUS AND METHOD FOR MERGING MPEG  
STREAMS IN A HEADEND SYSTEM**

Confirmation #: **5951**

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SIR:

**APPEAL BRIEF**

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2623 mailed May 2, 2008 finally rejecting claims 1, 6, 7, 9 – 21, 23 – 25, and 29 – 33. In the event that an extension of time is required for this Appeal Brief to be considered timely, and a petition therefor does not otherwise accompany this Appeal Brief, any necessary extension of time is hereby petitioned for.

Appellants believe the only fee due is the **\$270** Appeal Brief fee which is being charged to counsel's credit card. In the event Appellants are incorrect, the Commissioner is authorized to charge any other fees to Deposit Account No. 20-0782/**SEDN/E176600006**.

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**Real Party in Interest**

The real party in interest is COX COMMUNICATIONS, INC.

### **Related Appeals and Interferences**

Appellants assert that no appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **Status of Claims**

Claims 1, 6, 7, 9 – 21, 23 – 25, and 29 – 33 are pending in the application. Claims 1 – 33 were originally presented in the application. Claims 2 – 5, 8, 22, and 26 – 28 have been cancelled. Claims 1, 6 – 7, 21, 25, and 31 – 32 have been amended. Claims 1 and 3 – 21 stand rejected as discussed below. The final rejection of claims 1, 6, 7, 9 – 21, 23 – 25, and 29 – 33 is appealed.

### **Status of Amendments**

All but the claim amendments in Appellants' response to the final Office Action mailed May 2, 2008 have been entered.

More specifically, the Examiner did not enter amendments of claims 1, 21, 25, and 29 proposed by Appellants in response to the Final Office Action, dated August 24, 2007. In particular, the Examiner states in the Advisory Action that "the requested amendments to the claims would require further search and consideration" (see Advisory Action dated August 11, 2008, page 2). However, contrary to the procedure described in MPEP §714.13 (III), the Examiner has not provided an explanation of why the proposed amendments raised new issues that would require further consideration or search. Appellants respectfully submit that the proposed amendments do not alter the subject matter of the claims and were made to place the Appellants' claims in better form for this appeal. Accordingly, the amendments were proper and should have been entered (see 37 C.F.R. §1.116).

### **Summary of Claimed Subject Matter**

Embodiments of the present invention are generally directed to an apparatus for use in a headend system and a method for operating the headend system. More specifically, in one embodiment, the apparatus includes a receiving means (such as one or more protocol network ports) for receiving multiple separate MPEG input streams and a merging means (such as one or more PIDMUXs) for merging the MPEG input streams into a merged stream in such a manner that the resulting merged stream can be processed by a single PID processor of a television converter apparatus. The MPEG input streams may include NET PID data and/or headend management system polling data. The MPEG input streams may also include DCII packets where at least some of DCII packets are split across two or more MPEG packets of one of the MPEG input streams. The merging means merges the MPEG input streams in such a manner that for each single DCII packet of one of the MPEG input streams no packets from other MPEG input streams are inserted between any portions of this DCII packet.

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 21, and 25 are presented below in claim format with elements reading on the various figures of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Claim 1 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

1. (previously presented) Apparatus for use in a headend system (12), the apparatus comprising:  
means (201) for receiving a plurality of separate MPEG input streams (251);

means (11) for merging the plurality of separate input streams (251) and outputting a merged stream (240) that is capable of being processed by a single PID processor (41) in a television converter apparatus (16);

wherein the plurality of input streams (251) include a first stream (251a) having NET PID data and a second stream (251b) having headend management system polling data;

wherein at least one of the input streams (251) contains DCII data;

wherein at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams (251);

wherein the merging means (11) does not insert the packets from another one of the plurality of input streams (251) between any of the at least two portions of the DCII packet.

Support for the elements of claim 1 can be found at least from the following sections of Appellants' specification: page 3, paragraph [0012] – page 9, paragraph [0032]; page 10, paragraph [0039] – page 12, paragraph [0054]; page 12, paragraph [0057] – page 14, paragraph [0065]; and Figs. 1 – 3.

Claim 21 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

21. (previously presented) A system (10) comprising:
  - a headend system (12) and
  - a television converter apparatus (16);
    - the headend system (12) comprising:
      - means (201) for receiving a plurality of separate MPEG input streams (251);
      - means (11) for merging the plurality of separate input streams (251) and outputting a merged stream (240) that is



capable of being processed by a single PID processor (41)  
in a television converter apparatus (16);

wherein the plurality of input streams (251)  
include a first stream (251a) having NET PID data  
and a second stream (251b) having headend  
management system polling data;

wherein at least one of the input streams (251)  
contains DCII data;

wherein at least one DCII packet is split in at  
least two portions across at least two MPEG-2  
packets within one of the at least two input streams  
(251);

wherein the merging means (11) does not  
insert the packets from another one of the plurality of  
input streams (251) between any of the at least two  
portions of the DCII packet;

the television converter apparatus (16) including a plurality of  
PID processors (41), wherein one of the PID processors (41)  
processes the merged stream (240);

wherein the television converter apparatus (16) is  
programmed to receive headend management system (12)  
polling data via a PID processor (41) that is also used to  
receive NET PID data.

Support for the elements of claim 21 can be found at least from the  
following sections of Appellants' specification: page 3, paragraph [0012] – page  
9, paragraph [0032]; page 10, paragraph [0039] – page 12, paragraph [0054];  
page 12, paragraph [0057] – page 14, paragraph [0065]; and Figs. 1 – 3.

Claim 25 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

25. (previously presented) A method for operating a headend system (12), comprising the steps of:

- receiving (302) a plurality of separate MPEG input streams (251);
- merging (Fig. 2, Fig. 3) the plurality of separate input streams (251) and outputting (Fig. 2, Fig. 3) a merged stream (240) that is capable of being processed by a single PID processor (41) in a television converter apparatus (16);

- wherein the plurality of input streams (251) include a first stream (251a) having NET PID data and a second stream (251b) having headend management system polling data;

- wherein at least one of the input streams (251) contains DCII data;

- wherein the merging step includes splitting (Fig. 3) at least one DCII packet in at least two portions across at least two MPEG packets within one of the at least two input streams (251); and

- wherein the merging step includes a step of excluding (Fig. 3) from the merged stream (240) any received packets that precede a first packet having a start bit that is set.

Support for the elements of claim 25 can be found at least from the following sections of Appellants' specification: page 3, paragraph [0012] – page 9, paragraph [0032]; page 10, paragraph [0039] – page 12, paragraph [0054]; page 12, paragraph [0057] – page 14, paragraph [0065]; and Figs. 1 – 3.

### **Grounds of Rejection to be Reviewed on Appeal**

The Examiner has rejected claims 1, 6, 7, 9, 10, 12 – 21, 25, and 29 – 33 under 35 U.S.C. §103(a) as being unpatentable over Bechtel et al., U.S. Publication No. 2002/0138500 (hereinafter “Bechtel”) and Eng, U.S. Patent No. 5,963,557 (hereinafter “Eng”) and Chen et al., U.S. Patent No. 5,917,830 (hereinafter “Chen”). The Examiner has rejected Claim 11 under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng and Chen as applied to claim 1, and further in view of Puputti, U.S. Publication No. 2003/0097663 (hereinafter “Puputti”). The Examiner has rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng and Chen as applied to claim 21, and further in view of Birnbaum et al., U.S. Publication No. 2006/0020974 A1 (hereinafter “Birnbaum”). The Examiner has rejected claim 24 under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng, Chen, and Birnbaum as applied to claim 23, and further in view of Brosey, U.S. Patent No. 6,948,186 (hereinafter “Brosey”).

## ARGUMENTS

### *The Applicable Law*

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2141. Establishing a *prima facie* case of obviousness begins with first resolving the factual inquiries of *Graham v. John Deere Co.* 383 U.S. 1 (1966). The factual inquiries are as follows:

- (A) determining the scope and content of the prior art;
- (B) ascertaining the differences between the claimed invention and the prior art;
- (C) resolving the level of ordinary skill in the art; and
- (D) considering any objective indicia of nonobviousness.

Once the *Graham* factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in *KSR Int’l Co. v. Teleflex, Inc.*, 126 S. Ct. 2965 (2006); see also MPEP §2141.

### *The References*

#### Bechtel

Bechtel generally relates to a system and a method for providing a virtual file system to client applications running on set-top terminals employed in digital cable television systems. More specifically, Bechtel discloses a carousel file server located at a headend of a broadband network for streaming application data files over in-band and out-of-band delivery paths to set-top terminals in a network. The carousel server streams virtual streams carrying multicast addresses into a single PID stream within a stream set using MPEG-2 transport

protocols. The application data files in the virtual files system are flexibly partitioned among the virtual streams to create a virtual file system. The carousel server may support multiple carousels and virtual file systems simultaneously and adjust the partitioning or data delivery rate for each virtual stream set according to data type or priority, network status or bandwidth availability, user requirements, or file information including metadata (see Bechtel, Abstract; see also paragraphs [0001] and [0006]).

#### Eng

Eng generally relates to communication networks. More specifically, Eng discloses a method and a system for enabling point-to-point and multicast communication using three types of channels: upstream payload channels, upstream control channels, and downstream channels. Each channel is divided into slots or mini-slots. Upstream payload channel are used for carrying upstream directed payload bit-streams from stations to a central controller. Upstream control channel are used for carrying upstream directed control bit-streams from the stations to the central controller, such as time slot reservation requests. Downstream channels are used for carrying downstream directed control bit-streams from the central controller to the stations, such as acknowledgements, status of reservation requests, indications of assigned time slots in the upstream payload channel (see Eng, Abstract; see also col. 8, line 13 – col. 9, line 55).

#### Chen

Chen is generally directed to communications of digital video signals. More specifically, Chen discloses a method and an apparatus for splicing a secondary packetized data stream, such as a commercial, with a primary packetized stream, such as a network television program, without decompressing data in the primary data stream. In particular, when a start signal is received, a pre-splicing packet of the primary stream is determined, where the pre-splicing packet is the packet closest to the start time, which carries an anchor frame start

code. The pre-splicing packet is processed to discard the anchor frame data and to insert stuffing bytes. Also, identifying data of the primary stream is retrieved and provided to the secondary stream. Further, null packets are inserted into the output stream at the transition point between the main program and the commercial to prevent buffer overflow at a decoder that receives the output stream (see Chen, Abstract; see also col. 1, lines 5 – 15; col. 2 line 11 – col. 3, line 3).

#### Puputti

Puputti generally relates to broadcasting multiplexed digital video and audio data. More specifically, Puputti discloses a method and apparatus for dynamically providing services over a digital video broadcasting network and moving the services between transport streams. A service having a control channel, such as a television program, is being transmitted over a first transport stream to end user terminals in accordance to a first configuration parameter of the service maintained by the end user terminals. Without receiving interactive information from the end user terminals, the network generates and transmits a second configuration parameter to the end user terminals, where the second configuration parameter identifies a second transport stream. The network then transmits the service to the end user terminals over the second transport stream, where the second transport stream has been selected based on a data size of the service and an available bandwidth of the second transport stream (see Puputti, Abstract; see also paragraphs [0001] and [0006] – [0008]).

#### Birnbaum

Birnbaum generally relates to a software architecture that enables core software of a television set top terminal to be compatible with different set top middleware and operating system software. More specifically, Birnbaum discloses a software interface that enables television set top middleware and operating system software to control and interact with core set top system software in a subscriber television terminal to facilitate provision of desired

services such as service acquisition, system information management, set top configuration and control, return path for polling, download capabilities, and non-volatile memory management (see Birnbaum, Abstract; see also paragraphs [0002] and [0017] – [0018]).

### Brosey

Brosey generally relates to extracting messages from an input data stream. More specifically, Brosey discloses a multi-tasking message extractor for extracting messages from digital data streams. The message extractor includes a packet identifier filter, a control message processor, and two buffers, where each buffer is divided into a plurality of address locations associated with a plurality of channels. One buffer stores extracted message portions, while another buffer stores data corresponding to the extracted message portions. As additional message portions are received, identifying data in a data stream is used to match new message portions with message portions that have been already received and stored to form complete messages (see Brosey, Abstract; see also col. 1, lines 11 – 15; col. 1, line 55 – col. 2, line 35).

### **I. Claims 1, 6, 7, 9, 10, 12 – 21, 25, and 29 – 33**

Claims 1, 6, 7, 9, 10, 12 – 21, 25, and 29 – 33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bechtel and Eng and Chen.

#### *The Examiner's Arguments*

1. With respect to Appellants' independent claims 1, 21, and 25, the Examiner asserts that the combination of Bechtel and Chen teaches

“means for merging the plurality of separate input streams ...  
wherein at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams;  
wherein the merging means does not insert the packets from another one of the plurality of input streams between any of the at least two portions of the DCII packet.”

(see Final Office Action, page 3). More specifically, the Examiner suggests that Bechtel teaches merging input streams while Chen teaches “inserting packets from another stream (including another input stream, other DCII packets or any non-contiguous packet data) between any of at least two portions of DCII packet (see Final Office Action, page 3).

2. With respect to Appellants’ independent claims 1, 21, and 25, the Examiner asserts that Bechtel discloses the NET PID feature of Appellants’ claims 1, 21, and 25. More specifically, the Examiner suggests that features described in paragraph [0008], lines 1 – 8 and paragraph [0026], lines 3 – 5 of Bechtel are equivalent to the features of the NET PID data described by Appellants (see Final Office Action, page 2).

3. With respect to Appellants’ independent claims 1, 21, and 25, the Examiner asserts that the combination of Bechtel and Eng teaches: “wherein the plurality of input streams includes ... a second stream having headend management system polling data,” as recited in independent claim 1. More specifically, the Examiner interprets the headend management system data to be data sent from the headend, such as virtual directory data and multicast address data of Bechtel. The Examiner further argues that Eng teaches transmitting downstream data to subscriber stations so that responses, e.g., pay-per-view responses, were freely sent upstream in response to the poll in a contention free manner. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the headend management system of Bechtel to include polling data as taught by Eng (see Final Office Action, pages 5 – 6).

4. With respect to Appellants’ independent claims 1, 21, and 25, the Examiner suggests that Eng and Bechtel may be operably combined. In particular, the Examiner argues that both Eng and Bechtel disclose using non-slotted architecture, where Eng “discloses downstream MPEG2 streaming via PIDs” in column 13, lines 22 – 60 (see Final Office Action, page 2).



5. With respect to Appellants' dependent claim 6, the Examiner argues that Bechtel in view of Eng and Chen teach not to insert "a second stream, i.e., the headend management system polling data packets, between an incomplete contiguous set of previously streaming data, i.e., DCII data packets, for the purpose of preventing decompression/decoding and buffer overflow errors. Based on this rationale, the Examiner suggests that Appellants' claim 6 is obvious over Bechtel in view of Eng and Chen (see Final Office Action, page 8).

6. With respect to Appellants' dependent claim 10, the Examiner asserts that the claim is obvious over Bechtel in view of Eng and Chen (see Final Office Action, page 4).

7. With respect to Appellants' dependent claim 15, the Examiner asserts that Chen teaches all the limitations introduced by the claim. In particular, the Examiner equates Chen's main stream buffer 480 and insertion stream buffer 490 to Appellants' PID buffers and Chen's data buffer 485 to Appellants' output filter (see Final Office Action, page 11).

8. With respect to Appellants' dependent claims 17 and 31, the Examiner, citing multiple portions of Chen, asserts that the limitations of these claims are obvious over Bechtel in view of Eng and Chen. In particular, the Examiner suggests that Chen teaches that DCII are contagious packetized elementary stream packets spread across fixed byte MPEG packets and that if the contiguous packets are in the stream, including DCII packets, the stream would be outputted until a boundary or a splice point in the packets is reached (see Final Office Action, pages 12 – 13).

#### *Appellants' Response to the Examiner's Arguments*

As preliminary matter, Appellants note that the Examiner has not provided any rationale as to why differences identified by the Examiner between

Appellants' claimed inventions of dependent claims 6, 7, 9, 12 – 13, 18 – 20, and 32 – 33 and the primary reference, i.e., Bechtel, would have been obvious to a person skilled in the art. Rather, the Examiner merely cites portions of different references that allegedly teach the claim limitations. However, "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in *KSR Int'l Co. v. Teleflex, Inc.*, 126 S. Ct. 2965 (2006); see also MPEP §2141 III. "Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art." See MPEP §2141 III (emphasis added). Therefore, a *prima facie* case of obviousness with respect to claims 6, 7, 9, 12 – 13, 18 – 20, and 32 – 33 has not been established.

Further, Appellants note that the Examiner has failed to address one of the Appellants' arguments with respect to Bechtel. More specifically, because Bechtel has a filing date of January 11, 2002, whereas Appellants' application has a priority date of December 19, 2001, Appellants have argued that Bechtel is not a proper reference against Appellants' patent application and that the Examiner must rely on the Bechtel provisional application (filed on January 12, 2001) instead. In particular, because §111(a) applications claiming priority to provisional applications do not have to recite specifications that are identical to their provisional application, the Examiner must provide *prima facie* evidence that the alleged teachings of the Bechtel reference have direct support in the Bechtel provisional application. Appellants also received no response with respect to the request made for a copy of the Bechtel provisional application.

1. The suggested combination of Bechtel, Eng, and Chen does not teach or suggest at least:

"means for merging the plurality of separate input streams ...  
wherein at least one DCII packet is split in at least two  
portions across at least two MPEG-2 packets within one of  
the at least two input streams;

wherein the merging means does not insert the packets from another one of the plurality of input streams between any of the at least two portions of the DCII packet.”

First, Appellants respectfully note that according to the Examiner’s own interpretation of Chen, Chen cannot perform the merging in a manner claimed by Appellants. More specifically, Appellants’ claim 1 expressly recites that the “merging means does NOT insert the packets ... between any of the at least two portions of the DCII packet.” In contrast, according to the Examiner’s description, Chen does exactly the opposite, namely, inserts packets between two portions of DCII packet (see Final Office Action, page 3). Accordingly, following the Examiner’s interpretation of Chen, Chen cannot teach or suggest the above named limitations of Appellants’ claim 1.

Second, assuming that the Examiner has inadvertently omitted “not” from the argument, and that actually meant to say that Chen teaches not to insert packets between at least two portions of the DCII packet, Appellants still respectfully disagree that the above recited limitations of Appellants’ claim 1 are taught by the combination of Bechtel, Eng, and Chen.

According to Appellants’ claim 1, the merging means merges the plurality of separate MPEG input streams in an output merged stream where at least one of the input streams contains DCII data. In other words, DCII data packets are merged with regular MPEG packets into one output stream. However, Bechtel, Chen, or their combination does not teach merging these different types of data.

The Examiner acknowledges that Bechtel does not teach DCII data (see Final Office Action, pages 5 – 6). Chen, on other hand, merely discloses the DCII standard within the context of using a DCII stream as an alternative to a MPEG-2 stream. In particular, Chen refers to these two standards as two different embodiments (see, col. 16, lines 21 – 22). However, nowhere does Chen describe merging DCII and MPEG packets into one stream. Therefore, assuming *arguendo* that Bechtel teaches merging means, because Bechtel discusses only MPEG-2 data streams, while Chen discloses DCII and MPEG-2 data streams as alternative embodiments and fails to describe merging streams with DCII and MPEG-2 packets, Bechtel, Chen, or their combination not only fail

to disclose merging different types of data, but actually teach away from such an arrangement.

Furthermore, at least one of DCII packets is split in at least two portions across at least two MPEG-2 packets. In other words, such DCII packet occupies at least two MPEG-2 packets. In particular, as described in Appellants' specification, the DCII packets employed in the Appellants' arrangement may be up to 1024 bytes in size while the MPEG transport packets are only 188 bytes (see Appellants Specification, pages 13 – 14, paragraph [0013]).

Chen, on other hand, does not disclose that a DCII packet may span over multiple MPEG-2 packets and that the input stream may contain such DCII packets. To the contrary, Chen explicitly describes that transport streams in the MPEG-2 system or in the similar DigiCipher II system are made of the fixed length packets, namely 188 bytes in length (see Chen, col. 14, lines 45 – 48; col. 16, lines 21 – 24). Accordingly, even assuming that Chen and Bechtel could be combined as suggested by the Examiner Bechtel, and that such a combination teaches merging two different types of stream data, i.e., DCII and MPEG, into one stream, in such an arrangement all packets are would be of the same size. Therefore, Bechtel and Chen, alone or in combination, cannot teach:

- (1) a DCII packet being split in two or more portions respectively across two or more MPEG-2 packets within one of the input streams or
- (2) not inserting the packets from another input stream between any of the portions of the DCII packet.

Furthermore, one of the rationales used by the Examiner to combine Bechtel and Chen is to increase the efficiency and robustness (see Final Office Action, page 7). However, Chen explicitly states that for this particular purpose the transport packets have to be of the fixed length (see col. 16, lines 14 – 19). Therefore, combining Bechtel and Chen in a manner suggested by the Examiner would defeat this purpose and make such a combination inoperable, or at least inefficient. Accordingly, one of ordinary skill in the art would not combine the references in a manner suggested by the Examiner.

2. Bechtel fails to disclose an input stream having NET PID data.

In particular, the first portion of Bechtel cited by the Examiner states:

“The carousel file system employing virtual streams and files in accordance with the invention gives significant advantages to MSOs by reducing complexity in provisioning network services. For example, the use of multiple virtual streams in a single PID reduces channel map configuration requirements and lowers the hardware requirements and overhead associated with PID remapping and remultiplexing” (see paragraph [0008], lines 1 – 8).

In other words, this portion merely notes various advantages that may flow from using Bechtel’s arrangements. However, Bechtel does not teach or suggest NET PID data or its equivalent or that such data is included into an input stream to be merged by the merging means with at least one other input stream.

The second portion of Bechtel cited by the Examiner states:

“The operations stream contains structured information describing the carousel and the virtual file system therein...” (see paragraph [0026], lines 3 – 5).

At most, such structured information can be described as application data, such as CFS tables containing multicast address entries (see Bechtel, paragraphs [0027] – [0028]). However, the application data is not NET PID data or its equivalent. As described in the Appellants’ specification, the NET PID data is data, “such as time of day to set the clock and the network configuration for interactive operation” (see paragraph [0017]). Unlike the application data, such as data disclosed by Bechtel, the NET PID data does not contain information critical for the television-watching activity (see paragraph [0064]).

The Examiner also argues that Bechtel teaches using PID data and that such “data provides network configuration, in that it lists where services and programs are provided” (see Final Office Action, page 2). Appellants respectfully disagree with the Examiner and note that it is improper to equate such PID data with NET PID data of Appellants’ claim 1. However, assuming *arguendo* that such an interpretation is proper, Bechtel still fails to teach that PID data providing network configuration is included into an input stream that is to be merged with another input stream.

3. Bechtel or Eng, alone or in combination do not teach or suggest: “wherein the plurality of input streams include ... a second stream having headend management system polling data,” as recited in independent claim 1 (emphasis added)

The Examiner interprets the headend management system data to be data sent from the headend and equates such data to the virtual directory data and multicast address data of Bechtel. Asserting that Eng teaches transmitting downstream data from a headend to subscriber stations so that responses, e.g., pay-per-view responses, were freely sent upstream in response to the poll in a contention free manner, the Examiner further suggests using such teachings of Eng to modify the Bechtel’s arrangement (see Final Office Action, pages 5 – 6). Therefore, according to the Examiner’s interpretation, the combination of Bechtel and Eng teaches headend system polling data that is transmitted from the headend to the subscriber.

Appellants’ claim 1, on the other hand, recites an apparatus for use headend system comprising:

“means for receiving a plurality of separate MPEG input streams;  
means for merging the plurality of separate input streams and  
outputting a merged stream...”;  
wherein the plurality of input streams include ... a second stream  
having headend management system polling data...”

(emphasis added). In other words, the second input stream already contains the headend managements system polling data before it is received by the means for receiving of the headend system. Because, according to the Examiner’s own interpretation, Bechtel teaches only that the system data is transmitted from the headend and Eng teaches transmitting polling data downstream, neither the Bechtel system alone, nor the Bechtel system being modified by the teachings of Eng, can teach the headend system polling data of Appellants’ claim 1, where the input stream containing such headend system polling data is first received by the means for receiving of the headend system. Because the Examiner has not provided any arguments with respect to where the above discussed limitation of Appellants’ independent claims is taught or why such limitation would be obvious,

a *prima facie* case of obviousness with respect to independent claims 1, 21, and 25 has not been established.

4. Eng and Bechtel cannot be combined operably because the Eng and Bechtel arrangements utilize different architectures. More specifically, Eng discloses utilizing slotted architecture for upstream and downstream transmissions, where time slots are used to communicate information, for example, to subscriber devices (see Eng, col. 11, lines 8 – 31). In contrast, Bechtel does not disclose using slot architecture whether for the upstream transmission or for the downstream transmission. Rather, Bechtel discloses streaming architecture where the information streamed is wholly independent of any time-slot.

The Examiner suggests that Eng teaches “downstream MPEG2 streaming via PIDs” and without using time-slots, citing column 13, lines 22 – 60 of Eng (see Final Office Action, page 2). However, while the cited portion of Eng does mention MPEG-2 standard and PIDs, as described, Eng uses the MPEG-2 packets in the context of the slotted architecture (see Eng, col. 13, lines 42 – 49, 57 – 60; col. 14, lines 6 – 15, 27 – 42). Accordingly, because, in Eng, information is transmitted in accordance with particular time slots, while, in Bechtel, the information is transmitted independent of any time-slot, the Bechtel arrangement cannot be modified using the Eng arrangement in a manner suggested by the Examiner.

5. The Examiner argues that Bechtel in view of Eng and Chen teach not to insert “a second stream, i.e., the headend management system polling data packets, between an incomplete contiguous set of previously streaming data, i.e., DCII data packets, for the purpose of preventing decompression/decoding and buffer overflow errors,” and thus, teaches all the elements of Appellants’ claim 6 (see Final Office Action, page 8).

Appellants’ claim 6 recites: “wherein the merging means does not insert a second DCII packet,” and not “the head management system polling data

packets” as suggested by the Examiner. Because the Examiner has not provided arguments with respect to each of the limitations of Appellants’ claim 6, a *prima facie* case of obviousness has not been established.

6. The Examiner presents no arguments supporting the rejection of Appellants’ dependent claim 10 under 35 U.S.C. §103. Rather, the Examiner merely provides a conclusory statement that claim 10 is unpatentable over Bechtel and Eng and Chen (see Final Office Action, page 4).

More specifically, the Examiner appears to combine the rejection of claim 10 with the rejection of claims 1, 6, 21, and 25. However, in the body of the argument with respect to these claims nowhere does the Examiner address particular limitations of claim 10. On the other hand, the Examiner provides a separate argument with respect to a claim from which claim 10 depends, i.e., claim 9 (see Final Office Action, page 9). Therefore, according to the Examiner’ interpretation of Appellants’ claims, claim 10 includes limitations that are absent from claims 1, 6, 21, and 25. Therefore, to establish a *prima facie* case of obviousness the Examiner must provide a separate argument supporting the rejection. Because such an argument is lacking in the Final Office Action, a *prima facie* case has not been established, and thus, claim 10 is allowable under 35 U.S.C. §103.

7. The Examiner’ interpretation of Appellants’ claim 15, which depends from dependent claim 13, is inconsistent with the Examiner’ interpretation of claim 13. More specifically, claim 13 recites “[t]he apparatus of claim 1, wherein the merging means include a respective PID buffer for each one of the input streams.” Claim 15 recites “[t]he apparatus of claim 13, wherein ... only one of the PID buffers at a time transmits data from its corresponding input stream to the output filter.” With respect to claim 13, the Examiner suggests that the PID buffers corresponding to the input streams are taught in Bechtel (see Final Office Action, pages 9 – 10). However, with respect to claim 15, the Examiner refers to the PID buffers as elements of Chen, without any explanation as to why such



substitutions are made. Therefore, because the interpretations of claims 13 and 15 are inconsistent and because the Examiner fails to provide an explanation why one of ordinary skill in the art would make such substitutions, a *prima facie* case of obviousness with respect to claim 15 has not been established.

Moreover, with respect to claims 15 and 29, contrary to the Examiner's suggestion, Chen does not teach that the main stream buffer 480 and the insertion stream buffer 490 transmit data from main stream and insertion stream respectively to the data buffer 485. Rather, Chen teaches that the main stream buffer 480, insertion stream buffer 490, and the data buffer 485 form an output buffer 475, where the data buffer 485 is used to store common data such as PSI and null packets and the main stream buffer 480 and insertion stream buffer 490 are used to store the main stream and insertion stream respectively. A buffer controller 465 coordinates read and write operations of these buffers and addressing and output scheduling of each transport packet stored in the MSB, ISB and DB (see col. 9, lines 57 – 65).

Accordingly, each of the main stream buffer 480, insertion stream buffer 490, and the data buffer 485 stores a specific type of data. Therefore, data from the main stream buffer or insertion stream buffer 490 is not transmitted to the data buffer 485, and thus, Chen does not teach or suggest at least “only one of the PID buffers at a time transmits data from its corresponding input stream to the output filter,” as recited in dependent claim 15. Claim 29 recites a similar limitation. Accordingly, because Bechtel, Eng, and Chen, alone or in any combination do not teach or suggest all the elements of claims 15 and 29, claims 15 and 29 are non-obvious over Bechtel in view of Eng and Chen.

8. The combination of Bechtel, Eng, and Chen, suggested by the Examiner does not teach or suggest all the limitations of claims 17 or 31.

More specifically, claim 17 recites:

“the one of the PID buffers that is currently transmitting data to the output filter continues to transmit data to the output filter after transmission of the DCII packet is completed, if a second DCII packet begins within the same MPEG packet as the DCII packet.”

The Examiner suggests that this limitation is taught by Chen because Chen discloses that if the contiguous packets are in the stream, including DCII packets, the stream would be outputted until a boundary or a splice point in the packets is reached (see Final Office Action, pages 12 – 13).

However, assuming *arguendo* that the Examiner's interpretation of Chen is correct, transmitting packets until the boundary or splice point is different from continuing to transmit when one DCII packet ends and another starts within the same MPEG packet. For example, if in Chen the splicing point is identified as the end of the first DCII packet, then the second DCII would not be transmitted, but rather null packets would be transmitted instead. Therefore, Bechtel, Eng, and Chen, combined as suggested by the Examiner, do not teach or suggest all the limitations of Appellants' claims 17 and 31.

#### *Conclusion*

For at least the reasons discussed above with respect to points 1 – 4, independent claims 1, 21, and 25, Bechtel, Eng, and Chen, alone or in any combination, do not teach or suggest all the limitations of Appellants' independent claims 1, 21, and 25. Therefore, these claims are non-obvious over Bechtel in view of Eng and Chen, and thus allowable under 35 U.S.C. §103. Further, for at least the reasons discussed above with respect to points 5 – 8, Bechtel, Eng, and Chen, alone or in any combination, do not teach or suggest respectively all the limitations of Appellants' dependent claims 6, 10, 15 and 29, and 17 and 31, and thus these claims are also allowable under 35 U.S.C. §103 over Bechtel in view of Eng and Chen. Additionally, because dependent claims 6, 7, 9, 10, 12 – 20, and 29 – 33 include limitations of the respective independent claims and the rejection of the independent claims has been overcome, as described hereinabove, each such dependent claim is also allowable under 35 U.S.C. §103.

## II. Claim 11

Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng and Chen and further in view of Puputti.

### *The Examiner's Argument*

1. The Examiner asserts that though Bechtel in view of Eng and Chen fails to disclose several limitations of Appellants' claim 11, Puputti teaches all such limitations. More specifically, according to the Examiner, Puputti teaches:

a "first input stream merged within the first output stream has a datum indication that the first output stream is to be received by a second PID processor in the television converter apparatus; the second merging means merges the first output data stream with a second one of the plurality of input streams that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor."

In particular, the Examiner cites paragraph [0018], lines 9 – 11 and paragraph [0023] of Puputti, stating the

"when the headend/network operator merges multiple streams/services to another single transmission stream the pre-merged PID information indicating a first location/network address is dynamically updated thus the input stream/service is redirected to the location of the merged transport stream so that changes to services/streams can be readily communicated to the set-top terminals" (see Final Office Action, pages 15 – 16).

### *Appellants' response to the Examiner's Argument*

The Examiner misinterprets Appellants' claim 11, and thus, the argument that Puputti provides the limitations of Appellants' claim 11 that are missing from the combination of Bechtel, Eng, and Chen fails.

More specifically, according to Appellants' claim 11:

(1) a first merging means receive a first input streams that is to be received by a first PID processor;

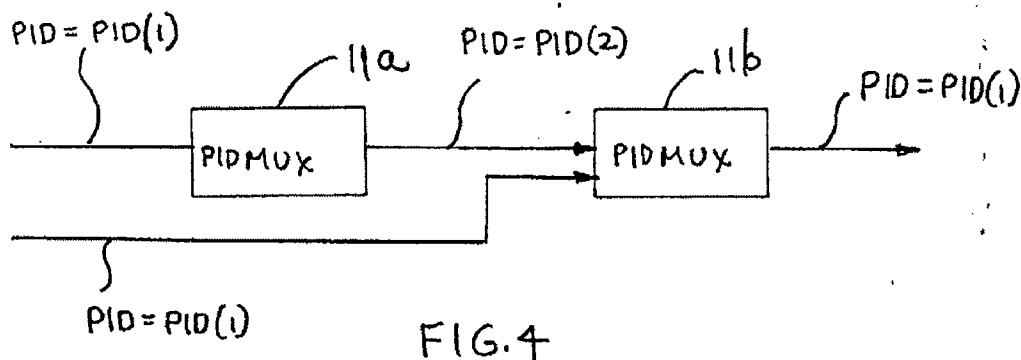
(2) the first merging means transmits the data from the first input stream to the second merging means within a first output data stream which is to be

received by a second PID processor, according to datum of the first output data stream;

(3) the second merging means merges the first output data stream with a second input stream that is to be received by the first PID processor into a second output data stream; and

(4) the second merging means transmits the second output data stream to the first PID processor, where the second output data stream contains data from the first and second input streams.

Such a configuration is also illustrated in Fig. 4 of Appellants' Specification, which is reproduced below for the convenience of the Board. Items 11a and 11b are the first and second merging means respectively.



The Examiner appears to suggest that such a configuration is taught by Puputti. However, what the Examiner argues is that Puputti discloses merging multiple streams into a single transmission stream, updating the pre-merged PID information, and communicating such changes to the set-top terminals. This is entirely different from the configuration of Appellants' claim 11.

Puputti does teach moving services among transport streams and indicating such changes to the set-top terminals. Puputti also teaches that PID may indicate a location of a control channel of a particular service (see

paragraph [0023]). However, Puputti does not teach transmitting the data, contained in the first input stream, from the first merging means to the second merging means within a data stream associated with a different PID processor than the first input stream, and then, transmitting such data from the second merging means within another data stream that is associated with the same PID processor as the first input stream. Rather, the cited portions of Puputti merely disclose that a service may be transmitted using a different transport stream than a stream indicated by the configuration information stored at the end user and that the configuration information may be updated accordingly.

Therefore, Puputti does not teach or suggest at least the following limitations of Appellants' claim 11:

“a first one of the input streams that is to be received by a first PID processor in the television converter apparatus is received by the first merging means;

the first merging means transmits the data from the first input stream to the second merging means within a first output data stream having a datum indicating that the first output data stream is to be received by a second PID processor in the television converter apparatus;

the second merging means merges the first output data stream with a second one of the plurality of input streams that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and

the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor.”

Accordingly, a *prima facie* case of obviousness with respect to Appellants' claim 11 has not been established.

### *Conclusion*

For at least the reasons discussed above with respect to point 1, claim 11 is non-obvious over Bechtel in view of Eng and Chen and further in view of Puputti. Furthermore, because claim 11 depends from claim 1, claim 11 inherits the allowable subject matter of claim 1, while reciting additional limitations. Because the rejection under 35 U.S.C. §103 given Bechtel in view of Eng and Chen has been overcome, as described hereinabove, and there is no argument

put forth by the Office Action that Puputti supplies that which is missing from Bechtel, Eng, and Chen to render independent claim 1 obvious, this ground of rejection cannot be maintained.

### III. Claim 23

Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng and Chen, and further in view of Birnbaum.

#### *The Examiner's Argument*

1. The Examiner acknowledges that Bechtel in view of Eng and Chen fails to disclose that the television converter apparatus is programmed to receive updated middleware program code via a middleware PID processor. However, citing multiple portions of Birnbaum, the Examiner suggests that Birnbaum teaches a television converter apparatus programmed to receive updated middleware. The Examiner argues that it would have been obvious to modify the system of Bechtel in view of Eng to include such an apparatus "for the added advantages of reuse and portability of the core set-top software allowing new applications/operating environments while maintaining the familiar core software core components" (see Final Office Action, page 17).

#### *Appellants' response to the Examiner's Argument*

1. First, the Examiner has failed to provide any rationale as to why one of the differences between Appellants' claim 23 and the system of Bechtel in view of Eng and Chen acknowledged by the Examiner, i.e., receiving updated middleware program via a middleware PID processor, would have been obvious to one of ordinary skill in the art (see Final Office Action, page 17). Analysis supporting 35 U.S.C. §103 rejection must be explicit. "Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art." See MPEP §2141 III. Therefore, a *prima facie* case of obviousness with respect to claim 23 has not been established.

Second, similar to Bechtel, Eng, and Chen, the cited portions of Birnbaum fail to discuss or disclose a middleware PID processor or that the television converter apparatus receives updated middleware via the middleware PID processor (see Birnbaum paragraph [0023], lines 1 – 3; paragraph [0024]; paragraph [0034], lines 1 – 3; paragraph [0238], lines 5 – 9; and paragraphs [0235] – [0236]). Therefore, because Bechtel, Eng, Chen, and Birnbaum, alone or in combination, do not teach or suggest receiving updated middleware program via a middleware PID processor, a *prima facie* case of obviousness with respect to dependent claim 23 has not been established.

### *Conclusion*

For at least the reasons discussed above with respect to point 1, claim 23 is non-obvious over Bechtel in view of Eng and Chen and further in view of Birnbaum. Furthermore, because claim 23 depends from claim 21, claim 23 inherits the allowable subject matter of claim 21, while reciting additional limitations. Because the rejection under 35 U.S.C. §103 given Bechtel in view of Eng and Chen has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Birnbaum supplies that which is missing from Bechtel, Eng, and Chen to render independent claim 21 obvious, this ground of rejection cannot be maintained.

## **IV. Claim 24**

Claim 24 is rejected under 35 U.S.C. §103(a) as being unpatentable over Bechtel in view of Eng, Chen, and Birnbaum, and further in view of Brosey.

### *The Examiner's Argument*

1. The Examiner acknowledges that Bechtel in view of Eng, Chen, and Birnbaum fail to disclose the middleware PID processor that does not extract any other stream from the merged stream except the stream containing the updated middleware programs code. However, the Examiner suggests that this limitation is taught by Brosey in col. 3, lines 39 – 45 and col. 5, lines 18 – 27. The

Examiner argues that it would have been obvious to modify the system of Bechtel in view of Eng and Birnbaum to include such a middleware PID processor “for the added advantage of providing a more robust set-top terminal by increasing flexibility by multitasking certain processors while dedicating other processors to more rigorous specialized applications, e.g., streaming (see Final Office Action, pages 18 – 19).

*Appellants’ response to the Examiner’s Argument*

1. Appellants fail to see how the portions of Brosey cited by the Examiner teach “the middleware PID processor [that] does not extract any other stream from the merged stream except the stream containing the updated middleware program code,” as recited in dependent claim 24.

Col. 3, lines 39 – 45 of Brosey states:

Another feature in the invention is that the filtering process is selectable; that is, the device can select whether to store all messages in the data stream received by the CMP-FPGA or only messages that correspond with predetermined message filtering parameters. The inventive device also preferably has single packet capture capability, where a single packet is captured and stored in RAM

(emphasis added).

Col. 5, lines 18 – 27 of Brosey states:

If the address filtering function is turned off, all messages received by the PID filter 104 having active packet identifiers [are] sent to the message processor 106 (indicated in FIG. 1 as BYTEDATA) If the address filtering is turned on, however, only messages with one of four selected allowable address types will be sent to the message processor 106 as BYTEDATA for storage. In one embodiment, the allowable address types are the following: Unit address 40, Multicast 16, and Broadcast. In this example, the Broadcast address type is always processed, while the other 3 address types are processed only if the address type has been selected and the address is defined in the CPU.

(emphasis added).

Appellants respectfully note that nowhere do the cited portions even mention a middleware PID processor, what such a processor does, or a data



stream containing the updated middleware program code. Furthermore, the cited portions do not discuss extracting stream(s) from a merged stream.

Rather, the cited portions focus on message filtering. In particular, messages satisfying predetermined filtering parameters may be selected and provided to a message processor. However, Brosey fails to disclose that such messages contain updated middleware program code. Moreover, such messages cannot be equated to a stream because data streams of Brosey may contain more than just a particular type of messages and messages to be selected may be spread among multiple data streams. Accordingly, the cited references, alone or in combination, do not teach all the limitations of Appellants' claim 24, and thus a *prima facie* case of obviousness for claim 24 has not been established.

### *Conclusion*

For at least the reasons discussed above with respect to point 1, claim 24 is non-obvious over Bechtel in view of Eng, and Chen, and Birnbaum, and further in view of Brosey. Furthermore, because claim 24 depends from claim 21, claim 24 inherits the allowable subject matter of claim 21, while reciting additional limitations. Because the rejection under 35 U.S.C. §103 given Bechtel in view of Eng and Chen has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Birnbaum, Brosey, or their combination supplies that which is missing from Bechtel, Eng, and Chen to render independent claim 21 obvious, this ground of rejection cannot be maintained.

### CONCLUSION

Accordingly, Appellants submit that all of the claims presently in the application are allowable.

For the reasons advanced above, Appellants respectfully urge that the rejection of claims 1, 6, 7, 9 – 21, 23 – 25, and 29 – 33 is improper. Reversal of the final rejection of the Office Action is respectfully requested.

Respectfully submitted,

11/12/08  
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## CLAIMS APPENDIX

1. (previously presented) Apparatus for use in a headend system, the apparatus comprising:

means for receiving a plurality of separate MPEG input streams;

means for merging the plurality of separate input streams and outputting a merged stream that is capable of being processed by a single PID processor in a television converter apparatus;

wherein the plurality of input streams include a first stream having NET PID data and a second stream having headend management system polling data;

wherein at least one of the input streams contains DCII data;

wherein at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams;

wherein the merging means does not insert the packets from another one of the plurality of input streams between any of the at least two portions of the DCII packet.

2. (cancelled)

3. (cancelled)

4. (cancelled)

5. (cancelled)

6. (previously presented) The apparatus of claim 1, wherein the merging means does not insert a second DCII packet between any of the at least two portions of the DCII packet.

7. (previously presented) The apparatus of claim 1, wherein the merging means excludes from the merged stream any received packets that precede a first packet having a start bit that is set.
8. (cancelled)
9. (original) The apparatus of claim 1, wherein the merging means include a state machine.
10. (original) The apparatus of claim 9, wherein the state machine is initialized in a state in which the merging means does not insert packets of a first one of the input streams between contiguous packets of a second one of the input streams.
11. (original) The apparatus of claim 1, further comprising second merging means for merging a second plurality of separate input streams and outputting a second merged stream that is capable of being processed by a single PID processor in a television converter apparatus, wherein:
  - a first one of the input streams that is to be received by a first PID processor in the television converter apparatus is received by the first merging means;
  - the first merging means transmits the data from the first input stream to the second merging means within a first output data stream having a datum indicating that the first output data stream is to be received by a second PID processor in the television converter apparatus;
  - the second merging means merges the first output data stream with a second one of the plurality of input streams that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and
  - the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor.

12. (original) The apparatus of claim 1, wherein the receiving means include a plurality of user datagram protocol network ports.
13. (original) The apparatus of claim 1, wherein the merging means include a respective PID buffer for each one of the input streams.
14. (original) The apparatus of claim 13, wherein each PID buffer includes a buffer state machine that tracks a DCII packet completion state for the input stream corresponding to that PID buffer.
15. (original) The apparatus of claim 13, wherein:
  - the merging means further comprises an output filter, and
  - only one of the PID buffers at a time transmits data from its corresponding input stream to the output filter.
16. (original) The apparatus of claim 15, wherein the one of the PID buffers that is currently transmitting data to the output filter continues to transmit data until transmission of a DCII packet is completed.
17. (original) The apparatus of claim 16, wherein:
  - an end of the DCII packet is contained within an MPEG packet; and
  - the one of the PID buffers that is currently transmitting data to the output filter continues to transmit data to the output filter after transmission of the DCII packet is completed, if a second DCII packet begins within the same MPEG packet as the DCII packet.
18. (original) The apparatus of claim 16, wherein a next one of the PID buffers begins to transmit data to the output filter when an end of a DCII packet contained within an MPEG packet is transmitted to the output filter, if the MPEG

packet does not contain the start of a second DCII packet immediately following the DCII packet.

19. (original) The apparatus of claim 15, wherein the output filter rennumbers an MPEG PID value of the merged stream.

20. (original) The apparatus of claim 15, wherein the output filter provides the merged stream to one of the group consisting of a network user datagram protocol address/port, a serial port, or a STDOUT.

21. (previously presented) A system comprising:  
a headend system and a television converter apparatus;  
the headend system comprising:  
means for receiving a plurality of separate MPEG input streams;  
means for merging the plurality of separate input streams and outputting a merged stream that is capable of being processed by a single PID processor in a television converter apparatus;  
wherein the plurality of input streams include a first stream having NET PID data and a second stream having headend management system polling data;  
wherein at least one of the input streams contains DCII data;  
wherein at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams;  
wherein the merging means does not insert the packets from another one of the plurality of input streams between any of the at least two portions of the DCII packet;  
the television converter apparatus including a plurality of PID processors, wherein one of the PID processors processes the merged stream;

wherein the television converter apparatus is programmed to receive headend management system polling data via a PID processor that is also used to receive NET PID data.

22. (cancelled)

23. (original) The system of claim 21, wherein the television converter apparatus is programmed to receive updated middleware program code via a middleware PID processor.

24. (original) The system of claim 23, wherein the middleware PID processor does not extract any other stream from the merged stream except the stream containing the updated middleware program code.

25. (previously presented) A method for operating a headend system, comprising the steps of:

receiving a plurality of separate MPEG input streams;

merging the plurality of separate input streams and outputting a merged stream that is capable of being processed by a single PID processor in a television converter apparatus;

wherein the plurality of input streams include a first stream having NET PID data and a second stream having headend management system polling data;

wherein at least one of the input streams contains DCII data;

wherein the merging step includes splitting at least one DCII packet in at least two portions across at least two MPEG packets within one of the at least two input streams; and

wherein the merging step includes a step of excluding from the merged stream any received packets that precede a first packet having a start bit that is set.

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (original) The method of claim 25, wherein the headend has a plurality of buffers, and the merging step includes only transmitting data from one of the buffers at a time its to an output.

30. (original) The method of claim 29, further comprising continuing to transmit data from the one of the buffers that is currently transmitting data to the output until transmission of a DCII packet is completed.

31. (previously presented) The method of claim 30, further comprising continuing to transmit data from the same one of the buffers that is currently transmitting data after transmission of the DCII packet is completed, if a second DCII packet begins within the same MPEG packet as the DCII packet.

32. (previously presented) The method of claim 30, further comprising transmitting data from a next one of the buffers when an end of a DCII packet contained within an MPEG packet is transmitted to the output, if the MPEG packet does not contain the start of a second DCII packet immediately following the DCII packet.

33. (original) The apparatus of claim 15, wherein the output filter updates MPEG continuity counters of the merged stream.



## EVIDENCE APPENDIX

None

## **RELATED PROCEEDINGS APPENDIX**

None